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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/863,652	05/22/2001	Eng-Chew Cheah	9818-050-999	1049

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Pennie & Edmonds, LLP
3300 Hillview Avenue
Palo Alto, CA 94304

EXAMINER

ZARNEKE, DAVID A

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 07/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Advisory Action

Application No.

09/863,652

Applicant(s)

CHEAH, ENG-CHEW

Examiner

David A. Zarneke

Art Unit

2827

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 27 June 2003 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

PERIOD FOR REPLY [check either a) or b)]

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.
- b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☒ A Notice of Appeal was filed on 27 June 2003. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
- (b) ☐ they raise the issue of new matter (see Note below);
- (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
- (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: _____

3. ☐ Applicant's reply has overcome the following rejection(s): _____.
4. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☐ The a) ☐ affidavit, b) ☐ exhibit, or c) ☐ request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: _____.

Claim(s) objected to: _____.

Claim(s) rejected: 1-13 and 20-27.

Claim(s) withdrawn from consideration: _____.

8. ☐ The proposed drawing correction filed on _____ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____.
10. ☐ Other: _____.

DETAILED ACTION

Applicant submitted an after final amendment to the claims along with a Notice of Appeal on June 27, 2003.

The Notice of Appeal has been entered and the examiners response to the amendment and arguments to the claims is detailed below.

Response to Arguments

Applicant's arguments filed 6/27/03 have been fully considered but they are not persuasive.

Applicant argues that the words "coupled", "attached" and "affixed" all imply the actual securement of the bond wire to the intermediate lead finger while Tanaka's teaching of "supporting and maintaining" (10, 31+) implies only contact, not securement.

The examiner takes the position that the word "maintaining" does indeed imply some form of securement, especially in light of one of the stated objectives of Tanaka.

First, the word "maintaining" is defined in *The American Heritage® Dictionary of the English Language, 4th edition (AHD)*, published by Houghton-Mifflin Company as:

To keep up or carry on; continue: *maintain good relations*.

1. To keep in an existing state; preserve or retain: *maintain one's composure*.
2. To keep in a condition of good repair or efficiency: *maintain two cars*.
3.
 - a. To provide for; support: *maintain a family*.
 - b. To keep in existence; sustain: *enough food to maintain life*.

4. To defend or hold against criticism or attack: *maintained his stand on taxes.*
5. To declare to be true; affirm: *maintained her innocence.*
6. To adhere or conform to; keep: *maintain a busy schedule.*

Therefore, from definitions 1 and 4, one can interpret this to include the concept of “maintaining” against the flow of a molding resin. To keep in an existing state; preserve or retain, or to defend against attack can be read as meaning to hold its position against the flow of a molding resin, which therefore implies some sort of securement so that its position can be kept in an existing state, retained or preserved.

Further, the full scope of Tanaka’s meaning of word “maintaining” can be gleaned from the specification. One of Tanaka’s stated objectives is to provide a technique which is capable of preventing a short-circuit or wire running condition (2, 31+), in which a wire is transformed by the flow of molding resin due to the lowering of the mechanical strength of respective leads, or a decrease in the wire spacing sometimes occurs in the case of resin molding after wire bonding (2, 8+).

With the definition of “maintain” and the cited objective of Tanaka in mind, it is readily inherent that Tanaka’s intended scope of the meaning of the word “maintaining” includes some form of securement of the bond wires so that their position is preserved during the application of the molding resin.

Therefore, the examiner sustains the previous rejections of the claims. They are re-stated here for completeness.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-7 and 20-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Tanaka et al., US Patent 6,265,762.

Tanaka teaches a lead frame structure comprising:
a semiconductor die (10) with a pad electrode (11) thereon;
a package lead (3);
a bond wire (13) comprising one end attached to the package lead, the other end attached to the pad electrode, and an intermediate portion; and
a wiring support (15) positioned between the package lead and the pad electrode that is attached to the intermediate portion of the bond wire (Figure 11).

Regarding claims 2 and 21, Tanaka teaches a support jig (16), to which the wiring support (15) is attached (Figure 11).

With respect to claims 3, 7, 22 and 26, Tanaka teaches the wiring support and the support jig as being made of an insulating material (10,36+).

As to claims 4 and 23, Tanaka teaches a supporting body (8) attached to the support jig, wherein the die is attached to the supporting body (Figure 11).

Regarding claims 5 and 24, Tanaka teaches the supporting body as being made of a metallic material having a high thermal conductivity for heat dissipation (5, 10+).

With respect to claims 6 and 25, Tanaka teaches using a sealing body (14) that encloses the die, a portion of the package lead, the bond wire, the wiring support, and the supporting body (Figure 9).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 8 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al., US Patent 6,265,762, as applied to claims 1 and 20 above.

Tanaka fails to teach the die as comprising a programmable logic device.

It would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the die of Tanaka to include a programmable logic device because programmable logic devices are obvious and well-known semiconductor die setups (MPEP 2144.05(b)).

Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lacap, US Patent 5,905,299, in view of Tanaka et al., US Patent 6,265,762.

Lacap teaches a quad flat pack (QFP) package comprising:

an electrically insulative tape (608) (intermediate lead finger mounting substrate;

a die (606) having bond pads attached to one side of the tape;

a lead (602);

a bond wire (612) having one end attached to the bond pad of the die, the other end attached to the lead, and an intermediate portion;

a heat spreader (614) attached to the opposite side of the tape; and

a plastic molding (604) that encapsulates the die, part of the lead, the bond wire and the heat spreader (Figure 6).

Lacap fails to teach the attachment of an intermediate lead finger to an intermediate lead finger mounting substrate, wherein the intermediate lead finger is positioned between the package lead and the bond pad and attached to an intermediate portion of the bond wire, and encapsulated by the mold compound.

Tanaka teaches leadframe structure comprising a wiring support (15) attached to a support jig (8) [intermediate lead finger mounting substrate], wherein the wiring support is positioned between the lead and the bond pad and the intermediate portion of the bond wire is attached to the wiring support (Figure 11).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the wiring support of Tanaka in the invention of Lacap because Tanaka teaches that the wiring support supports and maintains a loop in the bond wire and keeps the bond wires at a fixed height thus avoiding short-circuit among mutual wires (10, 31-46).

Regarding claims 10 and 11, Lacap teaches the tape as being made of an insulating material (6, 55+); also Tanaka teaches the wiring support as being made of an insulating material (10, 36+).

With respect to claim 12, it would have been obvious to one ordinary skill in the art at the time of the invention to optimize the die of Lacap and/or Tanaka to include a programmable logic device because programmable logic devices are obvious and well-known semiconductor die alternative setups (MPEP 2144.05(b)).

As to claim 13, Lacap teaches the die as being attached to a middle portion of the tape (Figure 6) and Tanaka teaches the wiring support as being attached to a peripheral portion of the support jig (Figure 11).

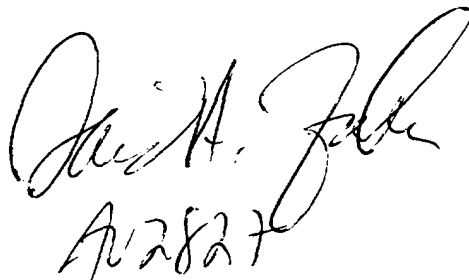
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Zarneke whose telephone number is (703)-305-3926. The examiner can normally be reached on M-F 10AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703)-305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703)-308-7722 for regular communications and (703)-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)-308-0956.

David A. Zarneke
July 22, 2003



A/2827